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TO: Adult Family Homes DSL-BQA-98-021
AFH 03

FROM: Judy Fryback, Director
Bureau of Quality Assurance

Hot-Water Temperatures

HFS 88.10(3)(L), Wisconsin Administrative Code, states that persons residing in adult family homes have the right to

> "…a safe environment in which to live. The adult family home shall safeguard residents who cannot fully guard themselves from environmental hazards to which they are likely to be exposed, including conditions which would be hazardous to anyone and conditions which would be or are hazardous to a particular resident because of the resident's condition or handicap."

One of the dangers to which residents might be exposed is water that is too hot. The elderly and individuals with mental and physical handicaps may have neurological conditions that prevent instant recoil from hot water. Because they do not instantly react to water that is too hot, they are particularly at risk for injury. Hot water can cause scalding, i.e. second and third degree burns in which the skin blisters and swells. Skin does not return to normal but forms scar tissue on healing. Such burns may lead to permanent disability. In recent months, we know of three residents in community-based residential facilities and of one resident in an adult family home in Wisconsin who were seriously injured by too-hot water.

Second and third-degree hot water burns can occur at the following rates at the following temperatures:

110 degrees F. 13 minutes
120 degrees F. 10 minutes
127 degrees F. 1 minute
130 degrees F. 30 seconds
140 degrees F. 6 seconds
158 degrees F. 1 second

This is to advise you of the necessity for checking the temperature of the hot water at the sinks, tubs, and showers used by residents. The temperature should be adjusted according to the types of residents you serve and the degree of independence they have in using sinks, showers, and tubs. We recommend a temperature of 110 to 120 degrees F. Licensing specialists who find temperatures above this range may issue a citation at HFS 88.10(3)(L), Wis. Adm. Code, for creating an environment that is not safe for residents.

Compliance with the requirements at HFS 88.10(3)(L) may be obtained and maintained by:

- Turning down the temperature on the water heater and monitoring the temperature at the faucets until a temperature between 110 and 120 is obtained. The down side of this option is that a water temperature of 140 degrees F. **at the hot water heater** is recommended to kill any Legionella bacteria that are in the water system.

- Installing a thermostatic mixing valve on the cold and hot water lines that lead from the water heater to the fixtures. A thermostatic mixing valve tempers the water such that water temperature will not exceed the temperature at which the thermostat is set. The mixing valve will control the water temperature at sinks, tubs, and showers served by the water line.

  Because a thermostatic valve will allow hot or cold water to continue flowing if it fails, adult family homes may, in addition, choose to install a "fail safe" valve between the mixing valve and the faucets to which the water line is leading. Generally, these are solenoid-actuated valves that shut down the hot water supply to the shower or tub (or sink) if the water exceeds 110 degrees. Although these valves are generally quite expensive, they are they only way to guarantee that unsafe water will not reach any of the faucets served by the water line. However, neither HFS 88, Wis. Administrative Code, nor the state plumbing code requires this type of valve in a non-health care facility.

  The size of your piping and the manufacturer model design both affect the cost of a thermostatic mixing valve and a fail-safe valve. If you purchase a thermostatic mixing valve or a thermostatic mixing valve and a fail-safe valve, we urge you to shop around. We have heard that estimates may vary greatly.

Other ways adult family homes may meet the requirement for safe water temperatures include the following. Each of these options, if not used in combination with a mixing valve, requires the installation of devices at **each** individual sink, tub, and shower that is used by residents.

- Installing a shower valve at each shower used by residents, that complies with the intent of the "fail safe" system. The Department of Commerce has currently approved one such valve – the Chicago 2500 TempShield Tub and Shower faucet valve. This valve controls water temperatures at the tub and shower and shuts off the water if the temperature exceeds 110 degrees. It does not control water temperatures at the sinks and there is not an approved counterpart for installation at the sink. Another method will be required to control water temperatures at the sinks.

- Installing a faucet with an adjustable hot-limit safety stop at each sink used by residents. Safety stops keep water at the faucets at a pre-set temperature by blending the amount of cold and hot water. If the water heater malfunctions, however, and heats the water even higher than where it had been set, a safety stop will still continue blending the same amount of hot and cold water. As a result, water temperatures at the faucet will be hotter than what is expected and burns could occur.

- Installing at each sink, shower, and tub used by residents, a temperature-actuated flow reduction valve. Depending on the faucet, these valves cost between $6 and $30 and can be easily retrofitted onto each shower, tub, and sink fixture. These valves reduce the flow of water to a trickle when the water temperature is approximately 115 degrees F. or above. We cannot recommend brand names; however, such valves are available at local plumbing or hardware stores. Because we do not have experience with the reliability of these valves, we suggest that you monitor the temperature of water coming from faucets on which these devices have been installed.

If you have questions, please contact the Regional Field Operations Director assigned to your home. Their names and phone numbers are:

Northeastern Regional Office, Green Bay	Pat Benesh	920-448-5249
Northern Regional Office, Rhinelander	Marianne Missfeldt	715-365-2802
Southeastern Regional Office, Milwaukee	Tony Oberbrunner	414-227-4908
Southern Regional Office, Madison	Phyllis Tschumper	608-243-2374
Western Regional Office, Eau Claire	Joe Bronner	715-836-4753